

## CLAIMS

1. A method for synchronizing symbols at the output of an equalizer, characterized in that the equalizer is a blind equalizer and that the method comprises the following steps:
- on sending, inserting into a succession of sent symbols, one or more known sequences of symbols repeated in said succession of symbols,
  - detecting said one or more known sequences at the output of said blind equalizer,
  - deducing any shifting of the symbols at the output of the blind equalizer from the result of said detection, and
  - retiming the symbols at the output of the blind equalizer as a function of the deduced shift.
2. A method according to claim 1, characterized in that, to detect a known sequence inserted, on sending, into a succession of symbols, the symbols at the output of the equalizer are correlated with said sequence and the resulting correlation peaks are detected.
3. A method according to claim 2, characterized in that detected correlation peaks are compared to a given threshold and the symbols are not retimed unless a peak higher than said threshold is detected.
4. A method according to claim 2, characterized in that the result of said correlation is used to determine information on the phase of the signal carrier that carries the received symbols and that information is used to resolve ambiguity as to the phase of the symbols at the output of the equalizer.
5. A method according to any one of the preceding claims, characterized in that, to retime frames, symbols are eliminated from or added to the succession of symbols at

the output of the equalizer between the sequence for which a shift is detected and the preceding sequence.

5 6. A method according to claim 5, characterized in that symbols are eliminated just after the sequence preceding the sequence for which a shift is detected.

10 7. A method according to any one of the preceding claims, characterized in that the blind equalizer has a switchable structure, uses a switchable algorithm, and, in a convergence mode of operation, includes in cascade a purely recursive whitening filter and a matched transversal filter that is reinitialized as a function of the performance of the equalizer.

15 8. A digital communications receiver including a blind equalizer, characterized in that it includes means for detecting, at the output from said blind equalizer, a sequence inserted into a succession of received symbols and means for deducing from the result of said detection any shifting of the symbols at the output of the blind equalizer and means for retiming the symbols at the output of the blind equalizer as a function of the shift detected.

25 9. A receiver according to claim 8, characterized in that it includes a turboequalization system of which the blind equalizer is a first stage.

30 10. A receiver according to claim 8, characterized in that it includes an interference canceling stage on the downstream side of the blind equalizer and the known sequences used to retime the symbols at the output of the blind equalizer are sequences also used for training said  
35 interference canceling stage.